



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,173	01/14/2004	Nian Yang	AMD-AF01210	4822

7590 07/12/2005

WAGNER, MURABITO & HAO LLP  
Third Floor  
Two North Market Street  
San Jose, CA 95113

EXAMINER
----------

WILSON, SCOTT R

ART UNIT	PAPER NUMBER
----------	--------------

2826

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/758,173

Applicant(s)

YANG ET AL.

Examiner

Scott R. Wilson

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8, 9, 16, 20-27, 29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8, 9, 16, 20-27, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Response to Amendment***

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 8, 9, 25 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Huang et al..

As to claim 8, Huang et al., Figures 3 and 4, discloses a semiconductor structure comprising a pad area (200), an electrostatic discharge protective device disposed directly below said pad area, said electrostatic discharge protective device comprising a transistor (218) and a resistance, embodied as the conductive structure formed below the pad (200) and above the transistor (218), wherein said pad area comprises: a substrate (150), a first layer of metal (208) disposed above said substrate wherein said electrostatic discharge protective device is disposed below said first layer of metal, and a second layer of metal (204) disposed above said first layer of metal, a layer of dielectric (230) disposed between said first metal layer and said second metal layer, and a via (202) disposed within said dielectric layer wherein said via electrically couples said first and said second metal layer, and wherein said via comprises a plurality of individual vias and said resistance comprises a portion of said plurality of individual vias, wherein said individual vias comprising said portion are arranged electrically in parallel one to another and wherein a resistive value of said resistance is configurable during a process for fabricating said semiconductor structure, wherein said resistive value of said resistance is fixed therein with setting a particular number for said portion of said plurality of individual vias in parallel (col. 4, lines 45-50). Huang

Art Unit: 2826

et al. discloses (col. 4, lines 35-39) that the conductive structure comprised of layers (204, 208, 212) and vias (202, 206, 210), as well as lines (226, 222, 212a) and (224, 220, 214) may all be formed from polysilicon, which has a known resistance. The fabrication of this structure determines the amount of polysilicon used, and therefore fixes the overall resistance. The structure of Huang et al. would have more resistance if fewer vias were formed, and less resistance if more vias were formed.

As to claim 9, Huang et al., Figure 4, discloses that there may be at least three metal layers.

As to claims 25 and 26, Huang et al. discloses that the via width affects the resistance of the structure (col. 2, lines 50-55), and it is understood in the art that vias length also affects linear resistance.

Claims 16, 23 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Huang et al.. As to claim 16, Huang et al., Figures 3 and 4, discloses a pad area apparatus for a semiconductor structure comprising a substrate (150), a first layer of metal (208) disposed above said substrate, a second layer of metal (204) disposed over said first layer of metal, an electrostatic discharge protective device wherein said electrostatic discharge protective device is disposed within said substrate directly below said pad area and wherein said electrostatic discharge protective device comprises a transistor (218) and a resistance, embodied as the conductive structure formed below the pad (200) and above the transistor (218), a layer of dielectric (230) disposed between said first metal layer and said second metal layer, and a via (202) disposed within said dielectric layer wherein said via electrically couples said first and said second metal layer wherein said via comprises a plurality of individual vias and wherein said resistance comprises a portion of said plurality of individual vias wherein said individual vias comprising said portion are arranged electrically in parallel one to another and wherein a resistive value of said resistance is configurable during a process for fabricating said semiconductor structure, wherein said resistive value of said resistance is fixed therein with setting a particular number for said portion of said plurality of individual vias in parallel (col. 4, lines 45-50). Huang et al. discloses (col. 4, lines 35-39) that the conductive structure comprised of layers (204, 208, 212) and vias (202, 206, 210), as well as lines (226, 222, 212a) and (224, 220, 214) may all be formed from polysilicon, which has a known resistance. The fabrication of this structure determines the amount of polysilicon used, and therefore fixes the overall

Art Unit: 2826

resistance. The structure of Huang et al. would have more resistance if fewer vias were formed, and less resistance if more vias were formed.

As to claims 23 and 24, Huang et al. discloses that the via width affects the resistance of the structure (col. 2, lines 50-55), and it is understood in the art that vias length also affects linear resistance.

Claims 20, 21 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Huang et al.. As to claim 20, Huang et al., Figures 3 and 4, discloses an electrostatic discharge protective device for a semiconductor structure comprising: a resistance, embodied as the conductive structure formed below the pad (200) and above the transistor (218), and a transistor (218) disposed within a substrate directly below a pad area (200) of said semiconductor structure, wherein said resistance comprises a plurality of vias of said semiconductor structure, wherein said vias are arranged electrically in parallel, one to another, and wherein a resistive value of said resistance is configurable during a process for fabricating said semiconductor structure wherein said resistive value of said resistance is fixed with setting a particular number for said portion of said plurality of individual vias in parallel.

As to claims 21 and 22, Huang et al. discloses that the via width affects the resistance of the structure (col. 2, lines 50-55), and it is understood in the art that vias length also affects linear resistance.

Claims 27, 29 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Huang et al.. As to claim 27, Huang et al., Figures 3 and 4, discloses method of fabricating a semiconductor structure comprising disposing a pad area (200) upon a substrate (230), disposing an electrostatic discharge protective device disposed below said pad area, said electrostatic discharge protective device comprising a transistor (218) and a resistance, embodied as the conductive structure formed below the pad (200) and above the transistor (218), wherein said pad area comprises: a substrate (150), a first layer of metal (208) disposed above said substrate wherein said electrostatic discharge protective device is disposed below said first layer of metal, and a second layer of metal (204) disposed above said first layer of metal, disposing a layer of dielectric (230) disposed between said first metal layer and said second metal layer, and disposing a via (202) disposed within said dielectric layer wherein said via electrically couples said first and said second metal layer, and wherein said via comprises a plurality of individual vias and said resistance comprises a portion of said plurality of individual vias, wherein said individual vias comprising

Art Unit: 2826

said portion are arranged electrically in parallel one to another and wherein said disposing a via comprises actively configuring a resistive value of said resistance, wherein said resistive value of said resistance is fixed therein with setting a particular number for said portion of said plurality of individual vias in parallel (col. 4, lines 45-50). Huang et al. discloses (col. 4, lines 35-39) that the conductive structure comprised of layers (204, 208, 212) and vias (202, 206, 210), as well as lines (226, 222, 212a) and (224, 220, 214) may all be formed from polysilicon, which has a known resistance. The fabrication of this structure determines the amount of polysilicon used, and therefore fixes the overall resistance. The structure of Huang et al. would have more resistance if fewer vias were formed, and less resistance if more vias were formed.

As to claims 29 and 30, Huang et al. discloses that the via width affects the resistance of the structure (col. 2, lines 50-55), and it is understood in the art that vias length also affects linear resistance.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

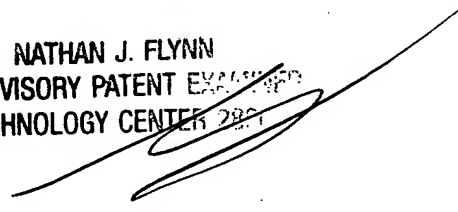
Art Unit: 2826

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott R. Wilson whose telephone number is 571-272-1925. The examiner can normally be reached on M-F 8:30 - 4:30 Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NATHAN J. FLYNN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2826



srw  
July 5, 2005